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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/815,446	03/22/2001	Christopher A. Bode	2000.068000/TT4149	7640

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WILLIAMS, MORGAN & AMERSON, P.C.
10333 RICHMOND, SUITE 1100
HOUSTON, TX 77042

EXAMINER
GARCIA OTERO, EDUARDO

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	Application No. 09/815,446	Applicant(s) BODE ET AL.	
	Examiner Eduardo Garcia-Otero	Art Unit 2123	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 22 February 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The reply was filed after the date of filing a Notice of Appeal, but prior to the date of filing an appeal brief. The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☒ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: *see attachment*. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *1-33*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. ☐ Other: _____.

ADVISORY ACTION

Introduction

1. Title is: METHOD AND APPARATUS FOR PERFORMING FIELD-TO-FIELD COMPENSATION.
2. First named inventor is: BODE.
3. Claims 1-33 have been submitted, examined, and rejected.
4. US non-provisional application was filed 3/22/2001, and no earlier priority is claimed.
5. Applicant's after final Amendment was received 2/22/05.

Index of Important Prior Art

6. Conrad refers to US patent 6,528,219.
7. Su refers to US patent 6,456,736.
8. Drohan refers to US patent 6,594,002.

Definitions

9. **"Metrology"** is defined as "The science of measurement for determination of conformance to technical requirements including the development of standards and systems for absolute and relative measurements" by The Authoritative Dictionary of IEEE Standards and Terms, Seventh Edition, by IEEE Press, ISBN 0-7381-2601-2, 2000.

Applicant's Remarks

10. Applicant Remarks page 15 asserts that the term "lot" refers either to wafers cut from a single crystal, or a set of wafers cut from a set of simultaneously grown crystals. The Examiner accepts this definition, and has amended the claim interpretations appropriately.
11. Applicant's proposed amendments to claim 1 are not entered. Specifically, Applicant proposes deleting the term "a predetermined amount of residual error exists", and inserting the term "significant residual error exists as a result of comparing said residual error with a predetermined tolerance, said residual-error analysis being". This proposed amendment raises new issues that would require further consideration and/or search, and are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal.

12. Applicant's other assertions are not persuasive, and have already been addressed in the prior office action.

Claim Interpretations

13. **"Semiconductor device"** is interpreted as devices such as integrated circuits made on wafers, see FIG 2.
14. **"Metrological data"** in claim 1 is interpreted broadly as "measured data". Note broad discussion at Specification bottom of page 8 and top of page 9 ("... and the like").
15. **"Field-to-field"** in claim 1 is interpreted as multiple exposure fields in a single wafer, see elements 210a and 210b in FIG 2, and see specification page 11. Also see page 7 "Wafer-to-wafer, wafer-lot to wafer-lot, and even field-to-field (portions of a wafer)".
16. **"Wafer-mean error"** in claim 1 is interpreted as "A wafer-mean error data set relates the average overlay error for a particular wafer as a whole from one process to the other" at page 14 line 13.
17. **"Field-mean error"** in claim 1 is interpreted as "field-mean error data corresponds to the average overly error relating to a particular field from one process to another" at page 14 line 14.
18. "Comparing" in claim 1 is interpreted as page 14 line 22 "calculation of the difference in the wafer-mean error to the field-mean error... determine whether significance residual error exists... compared to a pre-determined threshold tolerance... When a determination is made that no significant residual error exists in any particular exposure field 210, the wafer-mean overlay is used" and page 15 line 8 "When a determination is made that significant residual error exists... the system uses field-level, or field-mean, error data to adjust or compensate for the exposure field 210 error".
19. **"Predetermined amount of residual error"** is interpreted as "pre-determined threshold tolerance" per page 14 line 25.

Applicant's Remarks

20. Applicant persuasively asserts that the amended claims have overcome all prior objections and rejections.
21. However, new 35 USC 112 rejections are provided below for the amended claims.

35 USC § 112- first paragraph- enablement

22. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

23. Claims 1-33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

24. In claim 1, the term **"predetermined amount of residual error"** is not enabled. There is not adequate discussion in the Specification to enable predetermining the threshold amount of residual error that determines whether field-level adjustments are made, or whether wafer-level adjustments are made. See Specification page 14 line 25 "pre-determined threshold tolerance".

25. In claim 1, the term **"performing at least one of a field-level adjustment and a wafer-level adjustment based upon said residual-error analysis"** is not enabled. Note that according to the specification, the only one type of adjustment is allowed, based upon the whether or not the Specification page 14 line 25 "pre-determined threshold tolerance" is exceeded or not.

26. Claims 2-33 are not enabled for the same reasons as claim 1.

35 USC § 112-Second Paragraph-indefinite claims

27. The following is a quotation of the second paragraph of 35 U.S.C. 112: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

28. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

29. In claim 1, the term **"predetermined amount of residual error"** is not clear. There is not adequate discussion in the Specification regarding predetermining the threshold amount of residual error, that determines whether field-level adjustments are made, or

whether wafer-level adjustments are made. See Specification page 14 line 25 "pre-determined threshold tolerance".

30. Claims 2-33 are not enabled for the same reasons as claim 1.

31. Also, in claim 33, which depends from claim 1, the term "further comprising processing at least one additional semiconductor device" is not clear. The term "processing at least one semiconductor device" in independent claim appears to refer to processing at least multiple wafers (wafer-mean error), and each wafer has multiple fields (field-mean error). Thus, it is not clear how claim 1 could refer to just one semiconductor device. Thus, it is not clear how claim 33 further limits parent claim 1. Perhaps the definition of "semiconductor device" is not clear in the context of wafers and fields.

Patentable material

32. At present, the Examiner believes that this application contains some potentially patentable material. Specifically, the prior art does not disclose Specification page 14 line 22 "calculation of the difference in the wafer-mean error to the field-mean error... determine whether significance residual error exists... compared to a pre-determined threshold tolerance... When a determination is made that no significant residual error exists in any particular exposure field 210, the wafer-mean overlay is used" and page 15 line 8 "When a determination is made that significant residual error exists... the system uses field-level, or field-mean, error data to adjust or compensate for the exposure field 210 error".

33. The prior art of record does disclose "within-field data variation plus a field-to-field variation" at Conrad column 3 line 59.

Conclusion

34. All pending claims stand rejected.

35. The proposed after final amendments are not entered.

Communication

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Garcia-Otero whose telephone number is 571-272-3711. The examiner can normally be reached on Monday through Thursday from

9:00 AM to 8:00 PM. If attempts to reach the Examiner by telephone are unsuccessful, then any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. For emergencies, the Examiner's supervisor, Kevin Teska, can be reached at 571-272-3761. The fax phone number for this group is 703-872-9306.

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